REMARKS

Claims 1-18 are pending. In the Office Action mailed December 9, 2004, the Examiner rejected claims 1, 2, 4 and 5 under 35 U.S.C. 103(a) as being unpatentable over Lee (US006385435B1) in view of Kim (US20010046215A1) and in further view of Trompower (US 6,128,512). The Examiner rejected the remaining claims based on Lee, Kim, Trompower and various other references. Applicants traverse these rejections for at least the following reasons.

Claim 1 is a method for forcing a handoff in a cellular wireless system. As amended, it includes "receiving a preferred pilot signal in a directional receiving antenna within the geographical area from a selected base station," "amplifying the preferred pilot signal to provide a boosted pilot signal," and "transmitting the boosted pilot signal within the geographical area and substantially only along a boundary of the geographical area."

Applicants' Figure 6 and its corresponding description detail one possible implementation of this method. As illustrated, the repeater can receive a pilot signal, amplify the pilot signal, and then transmit the amplified pilot signal substantially only along a boundary between first and second geographic areas, such as by using a directional antenna. When a wireless device then moves from the first geographic area into the second geographic area, the wireless can detect the greater intensity of the amplified pilot signal at the boundary, which provokes a handoff of the wireless device from a base station serving the first geographic area to a base station serving the second geographic area.

Without the amplified pilot signal, the wireless device might have to travel farther into the second geographic area before it detects the pilot signal of the base station serving the second geographic area at a high enough level relative to the pilot signal of the base station serving the first geographic area to trigger a handoff of the wireless device from the base station serving the

first geographic area to the base station serving the second geographic area. Thus, the use of the amplified pilot signal transmitted substantially along the boundary between the first and second geographic areas might trigger a handoff of the device between base stations to occur earlier than it otherwise might.

Neither Lee nor Kim, nor another of the other references cited by the Examiner, teaches or suggests amplifying a pilot signal and then transmitting the amplified pilot signal substantially only along a boundary between two geographic areas in order to provoke a handoff, and therefore providing the amplified signal along the boundary regardless of whether the boundary is in a "shadow area." For example, Kim is directed to unified in-building communications, such as by "installing the repeaters in each floor .... to increase [the] strength of the pilot signal output from the in-building base station so as to enable the mobile terminals to easily acquire the in-building base station." (Kim, ¶46). Thus, Kim just generally repeats signals on a building floor, and it does not teach or suggest repeating pilot signals substantially just along a boundary between two geographical areas.

And, any such modification would render Kim inoperable for its intended purpose, because such a modification would only repeat the signals in a limited area (i.e., only substantially along the boundary). While mobile terminals in that limited area might be able to receive the repeated signals, mobile terminals in the rest of the building would not receive the repeated signal, and therefore might be unable to acquire the in-building base station. Because the described purpose of Kim is to provide coverage throughout the building, such a modification would limit the coverage provided in the building and render Kim inoperable for this purpose.

Likewise, Lee does not teach or suggest forcing handoffs by repeating pilot signals substantially along a boundary between geographic areas. Rather, Lee is directed toward

reducing coupled interference signals that appear at repeater inputs, and Lee does not repeat pilot signals. As described in Lee, "the present invention provides for the injection of pilot signals at the repeater output antenna as a form of known, intentional interference that is easily distinguished and removed, and that facilitates the cancellation of the interfering signal which arrives at the repeater input antenna by the same path as the pilot signals." (Lee, col. 3, lines 35-41). Thus, Lee uses pilot signals in order to reduce coupled interference, but teaches that the pilot signals are removed before transmitting the repeated signal. Because Lee teaches away from repeating the pilot signal, there would be no incentive to modify Lee to do so – let alone to repeat pilot signals substantially only along a boundary of a geographical area.

Trompower does not make up for the deficiencies of Kim or Lee. Trompower uses wireless base stations to extend the coverage area of a base station. (Trompower, Fig. 2). As illustrated in figures 2 and 9, the wireless base stations are generally located outside the coverage area of the wired base station. If the wireless base stations were located strictly within the coverage area of the wired base station, then the system would be significantly limited in its ability to extend the range of the wired base station, if not totally inoperable for this purpose. Moreover, since the purpose of the system is to extend the range of the base station, there would be no incentive to modify the wireless base stations to use only directional antennas, thereby decreasing the coverage area that would otherwise be provided if the wireless base stations used omnidirectional antennas. Further, there would be no incentive to modify the wireless base stations to then transmit only along a boundary between geographic areas (e.g., the boundary between the coverage areas of two wired base stations), because this would even further limit the effectiveness of using the wireless base stations to extend the system's range.

Finally, the Examiner cited Sabat as disclosing the use of a SAW filter and amplifier and Leslie as showing the use of a directional antenna. Neither of these two references, however, makes up for the deficiencies of the other cited references. Accordingly, independent claim 1 and its dependent claims are allowable. Independent claims 4, 7, 11 and 15-18 include similar elements and are therefore also allowable along with their dependent claims.

Applicants submit that these amendments place the application in condition for allowance. If any questions or issues remain, the Examiner is invited to contact Applicants' attorney, Brian Harris, at his direct dial number of (312) 913-3303.

Respectfully submitted,

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